

B16  
the drive output is, on the whole, not increased unnecessarily and the wear is also lowered. Also, fragile solid portions are not destroyed and are not exposed to any non-permitted high temperature increases.

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IN THE CLAIMS

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Please cancel Claims 1 - 16 and substitute Claims 17 - 26 therefor as follows:

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17. A mixing and reducing machine comprising:

a housing having an interior volume;

an axle extending vertically within said housing, said axle being rotatably mounted in said housing;

a mixing spiral means affixed to said axle for conveying product upwardly in said housing, said mixing spiral means comprising:

B17  
a first spiral-shaped mixing blade affixed to said axle in a first position along a longitudinal axis of said axle and extending radially outwardly therefrom; and

a second spiral-shaped mixing blade affixed to said axle in a second position along the longitudinal axis of said axle and extending radially outwardly therefrom, said first position being separated from said second position by a transition zone, said transition zone having no spiral-shaped mixing blades extending from said axle.

18. The machine of Claim 17, said first and second spiral-shaped mixing blades having different capacities for axially conveyed quantities.

19. The machine of Claim 18, said first spiral-shaped mixing blade having a helix angle that is different than a helix angle of said second spiral shaped mixing blade.

20. The machine of Claim 18, said first spiral-shaped mixing blade having a blade width that is different than a blade width of said second spiral-shaped mixing blade.

21. The machine of Claim 18, said first spiral-shaped mixing blade having a periphery with a rotational speed that is different than a rotational speed of a periphery of said second spiral-shaped mixing blade.

22. The machine of Claim 17, said mixing spiral means for rotating said first and second spiral-shaped mixing blades at different rotational speeds.

23. A mixing and reducing machine comprising:

a housing having an interior volume, said housing having an inner wall with catchment elements affixed thereto;

an axle extending vertically within said housing, said axle being rotatably mounted in said housing;

a mixing spiral means affixed to said axle for conveying product upwardly in said housing, said mixing spiral means comprising:

a first spiral-shaped mixing blade affixed to said axle in a first position along a longitudinal axis of said axle and extending radially outwardly therefrom; and

a second spiral-shaped mixing blade affixed to said axle in a second position along the longitudinal axis of said axle and extending radially outwardly therefrom, said first position and said second position defining a transition zone therebetween, each of said first and second spiral-shaped mixing blades having a radially outer end meshing with the respective catchment element.

24. The machine of Claim 23, each of said catchment elements being a closed ring element.

25. The machine of Claim 23, each of said catchments being a toothed ring element.

26. A mixing and reducing machine comprising:

a housing having an interior volume;

an axle extending vertically within said housing, said axle being rotatably mounted in said housing;

a mixing spiral means affixed to said axle for conveying product upwardly in said housing, said mixing spiral means comprising:

a first spiral-shaped mixing blade affixed to said axle in a first position along a longitudinal axis of said axle and extending radially outwardly therefrom; and

a second spiral-shaped mixing blade affixed to said axle in a second position along the longitudinal axis of said axle and extending radially outwardly therefrom, said first position and said second position defining a transition zone therebetween, each of said first and second spiral-shaped mixing blades having a shearing head affixed to a lower end thereof, said shearing head being aligned with said axle.

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IN THE ABSTRACT

On page 14, first paragraph of the substitute specification, revise the Abstract as follows:

A mixing and reducing machine with an upward-conveying mixing spiral that rotates around a vertical rotational axle. In order to achieve a more intensive mixing of the mixed product a second mixing spiral is connected in the axial direction after a first mixing spiral, with a transition zone arranged in between. In this way, zones of different axial conveying capacity are connected after each other in the axial direction. The mixing spirals are formed of several mixing blades arranged after each other in the circumferential direction.